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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/722,123  | 11/26/2003  | Michihiro Shibata    | Q78700              | 4843             |
| 23373   | 7590        | 03/17/2006           | EXAMINER            |                  |
| SUGHRUE MION, PLLC<br>2100 PENNSYLVANIA AVENUE, N.W.<br>SUITE 800<br>WASHINGTON, DC 20037 |             |                      | JOLLEY, KIRSTEN     |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 1762                |                  |

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/722,123

Applicant(s)

SHIBATA, MICHIIRO

Examiner

Kirsten C. Jolley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/10/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-11, drawn to a method for producing an optical recording medium, classified in class 427, subclass 240.
  - II. Claim 12, drawn to an optical recording medium, classified in class 428, subclass 64.8.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made by another process, for example the product can be made by a process of brushing or spraying the dye solution on the substrate, or by a spin coating process in which the substrate is only rotated at a higher speed after supply of dye solution.

3. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Bruce Kramer on March 14, 2006 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-11.

Affirmation of this election must be made by applicant in replying to this Office action. Claim

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12 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Walters et al. (US 5,837,319).

Walters et al. discloses a method of coating a dye solution on a substrate by a spin coating method to form a dye recording layer and to produce an optical recording medium (col. 1, lines 31-35). Walters et al. teaches that the substrate is rotated at a rotation speed of less than *or equal to* 500 rpm during a period from the beginning of supply of the dye solution to the end of supply of the dye solution (col. 3, lines 4-6). A rotation speed of 500 rpm meets the limitation of 400 rpm or higher.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walters et al.

Walters et al. is silent with respect to the amount of dye in the dye solution. It would have been obvious to one having ordinary skill in the art to have determined the optimum amount of dye through routine experimentation depending on the particular dye used, the desired dye coloring, etc. in the absence of a showing of criticality.

9. Claims 3-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arioka (US 2002/0037366) in view of Shiau et al. (US 5,985,363).

Arioka discloses a method of producing an optical recording medium by coating a dye solution on a substrate by a spin coating method and drying the dye solution to form a dye recording layer. Arioka generally discloses a process where dye solution is dropped on the substrate while the substrate is either stationary or rotating, and then rotating the substrate at a high speed to form a thin film on the surface (paragraph 0039). Arioka also teaches that similar issues and similar processes may be used in coating resist on a wafer in a semiconductor manufacturing process as coating light-absorbing dye in an optical disk manufacturing process (paragraphs 0001 and 0002). With respect to Arioka's process, Arioka teaches that the substrate is a polycarbonate resin substrate having spiral grooves therein (paragraph 0049), as is known in the optical recording medium art. Arioka lacks the specific details of spin speeds and spin times, and one skilled in the art would have been motivated to look to the prior art for exemplary teachings of specific spin coating process parameters to be used in Arioka's dye solution coating process.

Shiau et al. is cited for its teaching of applying a uniform coating of photoresist solution over a substrate having varying surface topography. Shiau et al. teaches that in a conventional process of applying coating material at a low spin speed and then spinning at a faster speed to distribute the coating material results in the appearance of radial striations of uneven coating thickness over the surface (col. 3, lines 51-65). Shiau et al. discloses a method of improved coating uniformity on a substrate surface having varying surface topography using a process of first dispensing coating material at a spin speed of 1500-2500 rpm, then performing a low-speed rotation step of rotating the substrate at a speed lower than a speed at the beginning (and end) of the supply of the coating solution at 100-1500 rpm, and then accelerating the spin speed to a rate of 3000-5000 rpm, and then finally decelerating the spin speed to 1000-3000 rpm (col. 4, line 63 to col. 5, line 34). [It is noted that claim 3 only requires that the low-speed rotation step is performed at a speed lower than a speed at the beginning of supply of dye solution or than a speed at the end of supply of dye solution.]

It is the Examiner's position that it would have been obvious to one having ordinary skill in the art to have incorporated the teachings of Shiau et al. regarding spin speeds and times, including the use of a low-speed rotation step after the end of supply of coating solution, in the dye solution coating process of Arioka in order to produce an improved coating uniformity and reduced radial striations since Shiau et al. is similarly related to coating on a substrate having an uneven topography, and because Arioka discloses that similar issues arise in coating photoresist coatings on semiconductor substrates and dye solutions on optical recording medium substrates.

As to claim 4, Shiau et al. teaches that the low-speed rotation step starts immediately after the end of supply of its coating solution.

As to claim 5, Arioka teaches using a dye solution having dye in an amount of 4% (paragraph 0047). However it is the Examiner's position that it would have been obvious for one having ordinary skill in the art to have determined the optimum amount of dye through routine experimentation depending on the particular dye used, the desired dye coloring, etc. in the absence of a showing of criticality.

As to claims 6-9, it is well known in the spin coating art that spin speeds and spin times are optimized through routine experimentation and such is within the skill of an ordinary artisan, depending upon the particular coating solutions used, the desired coating thickness, the size and topography of the substrate, etc. It is well settled that determination of optimum values of cause effective variables such as these process parameters is within the skill of one practicing in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

As to claims 10-11, since Arioka is silent with regard to the ambient temperature and relative humidity during its coating operations, it would have been obvious to have performed the coating in Arioka at room temperature and at ambient/normal humidity levels. The claimed temperature and humidity ranges encompass room temperature and ambient/normal relative humidity levels.

### ***Conclusion***


10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yoshihara (US 6,117,486), Matsuura (US 2003/0087535), Lee et al. (US 6,890,595), and Sanada et al. (US 5,989,632) are cited because they disclose the conventionality of a low speed rotation step after the supply of a coating solution in a spin coating process.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C. Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Wednesday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Kirsten C Jolley  
Primary Examiner  
Art Unit 1762

kcj